HP Elite x3

Maintenance and Service Guide
IMPORTANT! This document is intended for HP
authorized service providers only.

Product notice

This guide describes features that are common to most products. Some features may not be available on your device.

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. See http://www.microsoft.com.

To access the latest user guides or manuals for your product, go to http://www.hp.com/support, and select your country. Select **Find your product**, and then follow the on–screen instructions.

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this device, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a refund subject to the refund policy of your place of purchase.

For any further information or to request a full refund of the device, please contact your local point of sale (the seller).

Table of contents

1 Product description

Category	Description
Product Name	HP Elite x3
Processor and chipset	Qualcomm® MSM 8996 Snapdragon™ 820 Quad Core Processor
Graphics	Adreno™ 530 GPU (integrated in the MSM 8996 processor)
Panel	5.96 inch (15.14 cm), WQHD 2560x1440 AMOLED, 16:9 aspect ratio, 494 PPI, Gorilla Glass4 with anti-smudge coating. Viewing Angle: 85'/85'/85'/85'. Brightness: typical 350 nits (cd/m²)
	Supports passive pen and Multi-touch
Memory	4 GB LPDDR4 memory, integrated onto system board, dual channel x32 PoP 32 Gbit
Storage	eMMC 5.1
	64 GB eMMC, integrated onto system board
	Your device has read/write support for SDXC microSD cards up to 2 TB
Audio and video	Three internal microphones
	One external microphone from audio-out (headphone)/audio-in (microphone) combo jack
	Stereo speakers, one speaker sharing with earpiece, speaker rated power is 0.6 W per channel, short-term maximum power is 1.2 W
	Snapdragon Audio+ audio support, B&O Branding
	Qualcomm Fluence™ Pro technology
	16.0 MP full-frame high-definition (HD) rear-facing camera, with single LED flash, and low light capabilities. (Phase detection auto focus support planned for future Over The Air (OTA) upgrade)
	8.0 MP full-frame HD front-facing camera, with low light capabilities
	2.4 MP IRIS scan (Iris Recognition)
Sensors	Accelerometer + Gyroscope
	Ambient light sensor (ALS) + Proxy combo
	Pressure
	e-Compass
	Near Field Communication (NFC)
	Sensor Hub (SSC on MSM 8996)
	Hall effect sensor
Wireless networking	**Integrated WLAN option:**
	802.11 ac/a/b/g/n, dual band 2x2 MIMO with dual antenna
	Miracast/Wi-Fi Direct mirroring
	Bluetooth 4.0+ LE and security
	Near field communication (NFC):
	NXP (NQ210)

Category	Description
	WWAN:
	• EMEA+APC+Chile—2G: 850/900/1800/1900 MHz, 3G: B5/8/2/1/4, 4G: FDD B1/3/5/7/8/19/20/26/28, TDD B38/39/40/41 (roaming bands B2/4/17/12/29 are desired but no tests and performance conformance are required), 2DL CA: B3+B20, B3+B7, B20+B7, B7+B28, B1+B3, B3+B5, B3+B8, B1+B5, B3+B28, TDD Intra CA; Frequency Ranges: LB 703-960 MHz, MB 1710-2170 MHz; HB 2300-2400 MHz, 2496-2690 MHz
	• Americas (excluding Chile)—2G: 850/900/1800/1900MHz, 3G: B5/8/2/1/4, 4G: FDD B2/4/5/7/12/17/29/30 (roaming bands B1/3/20 are desired but no tests and performance conformance are required), 2DL CA: B2+B29, B4+B29, B2+B17, B4+B17, B2+B12, B4+B12, B4+B7; Frequency Ranges: LB 699-960 MHz; MB 1710-2170 MHz; HB 2496-2690 MHz
	Select products support two SIM cards
External expansion	microSD card slot expandable up to 2 TB, plus security feature
Ports	• Audio: 3.5 mm both 3 and 4-pole audio-out (headphone)/audio-in (microphone) combo jack for headset
	• USB 3.0 Type-C connector
	• Dual Nano SIM card or Nano SIM+ microSD card via 3-in-2 card tray
	• Video out via USB 3.0, DP Alt Mode
	• POGO pin connector
Docking	HP Elite x3 Desk Dock
Keyboard/Mouse	Support for USB or Bluetooth external keyboard and mouse
Power requirements	**Battery**
	Non-removable, 3.85 V, Pack capacity is 15.98 Wh Long life Battery (LLB).
	Battery capacity is typical 4,150 mAh Lithium-Polymer, 1S1P
	Adapter
	USB charging, via USB 3.0 Type-C connector
	Wall adaptor: 5 V/2 A 10 W
	Wireless charging, WPC(Qi)/PMA dual mode
	Full range (110-240 V)
	Power cord
	USB 3.0 Type C to A cable (1.0)
Operating system	**Preinstalled**:
	• Windows® 10 Mobile - Dual SIM
	• Windows 10 Mobile - Single SIM
	• Operating system OTA upgrade for 2 years after purchase
Serviceability	**End user replaceable parts**:
	• AC adapter

2 External component identification

Front

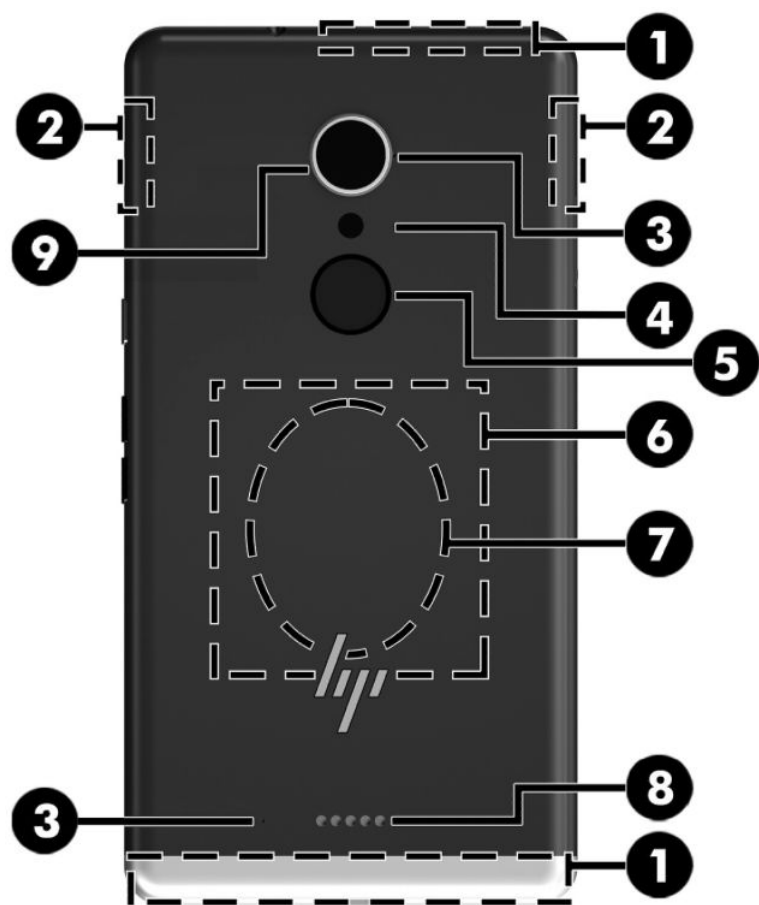| Component		Description
(1)	Power light	• Red: The battery is near depletion and is being charged. This light will remain on until the battery is charged enough for the device to be functional.
(2)	Ambient light sensor	Detects the light in the surrounding area and then adjusts the brightness of the display.
		To set automatic brightness adjustment:
		▲ Swipe down from the top of the screen, tap ⚙ **All settings**, tap **System**, tap **Display**, and then follow the on-screen instructions.
(3)	Earpiece	Produces sound for phone calls.
(4)	Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.
		WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the *Regulatory, Safety and Environmental Notices*.
		To access this guide:
		▲ Swipe up from the middle of the Start screen, tap [hp] **HP Device Hub**, and then tap **User Guide**. Select your language if prompted to do so, and then tap **Regulatory, Safety and Environmental Notices**.
		IMPORTANT: You must be connected to the Internet to access the latest version of the document.
		NOTE: When a device is connected to the jack, the external speakers are disabled.
(5)	Camera	Records video and captures photographs.
		To use your camera:
		▲ Tap 📷 on the Start screen.
(6)	Iris camera	Allows iris recognition to unlock your device, instead of a PIN.
(7)	Power button	• When the device is off, press the button for about 5 seconds until the device vibrates to turn on the device.
		• When the device is on, press the button briefly to turn off and lock the screen.
		• When the screen is off, press the button to display the lock screen.
		• When the device is on, press and hold the button until the **slide down to power off** message appears. Release the button, and then swipe down to turn off the device.
		NOTE: The device will power on when connected to a power source.

Component		Description
(8)	Volume up button	Increases speaker volume incrementally while you hold down the button. The volume status bar appears when you press this button.
(9)	Volume down button	Decreases speaker volume incrementally while you hold down the button. The volume status bar appears when you press this button.
(10)	Internal microphone	Transmits sound for phone calls and records sound for other applications on your device.
(11)	Speaker	Produces sound.
(12)	USB Type-C charging port	Connects to the AC adapter to provide power to the device, connects to the desk dock, or connects to any USB device with a Type-C connector.
		NOTE: Adapters (purchased separately) may be required.
(13)	Nano SIM/microSD memory card reader	Supports a nano subscriber identity module (SIM) card and a microSD memory card in a dual-compartment tray. Select products support two SIM cards.
		Place your fingernail in the small recess on the bottom of the card tray and pull the tray out to remove it from the device.
		NOTE: Your device has read/write support for microSD memory cards up to 2 TB.

Back

Component		Description
(1)	WWAN antennas*	Send and receive wireless signals to communicate with wireless wide area networks (WWANs).
(2)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(3)	Secondary microphones	Record sound.
(4)	Flash and flashlight	Provides light for photographs and videos, and can operate as a flashlight.
		To access the flashlight:
		▲ Swipe down from the top of the screen, tap **Expand**, and then tap **Flashlight**.
		Tap **Flashlight** again to turn off the flashlight.
(5)	Fingerprint reader	Allows a fingerprint recognition to unlock your device instead of a PIN.
		NOTE: The fingerprint reader may require additional software. For more information, go to http://www.hp.com/support.
(6)	NFC tapping area	Allows you to share data and files with another device that has Near Field Communications (NFC). Simply touch the devices together.

Component		Description
(7)	Wireless charging area	Allows you to charge your device wirelessly.
(8)	Accessory connector	Connects optional accessories that support Pogo pin connectors.
(9)	Camera	Records video and captures photographs.
		To use the camera:
		▲ Tap [📷] on the Start screen.

*The antennas are not visible from the outside of the device. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

▲ Swipe up from the middle of the screen, tap [HP] **HP Device Hub**, and then tap **User Guide**. Select your language if prompted to do so, and then tap **Regulatory, Safety and Environmental Notices**.

IMPORTANT: You must be connected to the Internet to access the latest version of the document.

Labels

The labels for the device provide information you may need when you troubleshoot system problems or travel internationally with the device.

📝 **IMPORTANT:** Check the following locations for the labels described in this section: the HP Device Hub app, the electronic regulatory labels, the back of the device, and the device box.

To access the HP Device Hub:

▲ Swipe up from the middle of the screen, tap 🛡️ **HP Device Hub**. From here you can view the model name, the product number, the IMEI number, and other information.

To access the electronic regulatory labels:

▲ Swipe up from the middle of the screen, tap 🛡️ **HP Device Hub**, and then tap **Regulatory**.

- Service label—Provides important information to identify your device. When contacting support, you will probably be asked for the serial number, IMEI number, and possibly for the product number or the model number. Locate these numbers before you contact support.

- Regulatory label(s)—Provide(s) regulatory information about the device.

- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.
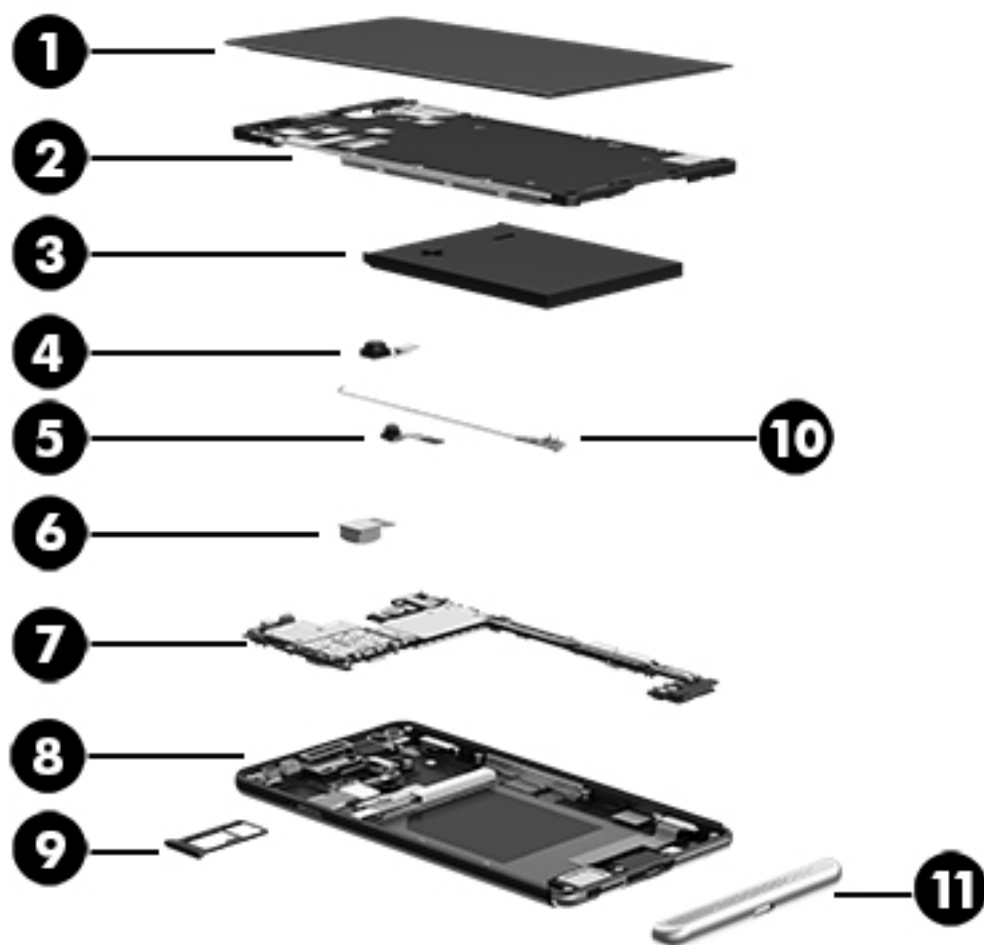
Labels on the device are located on the bottom of the back of the device.

3 Illustrated parts catalog

Major components

Item	Component	Spare part number
(1)	**5.96 inch, WQHD 2560x1440 AMOLED, Touchscreen display panel assembly**, includes OLED panel, laminated touch sensor, lens adhesive, display flex	903687-001
(2)	**Chassis**; if you replace the chassis, you must also replace the battery	903685-001
(3)	**Battery**,1C, 15 WHr, LI FC01015-PL non-user removable; if you replace the battery, you must also replace the chassis	838524-005
(4)	**Front camera** (includes cable)	853377-001

Item	Component	Spare part number
(5)	**Iris camera** (includes cable)	900262-001
(6)	**Rear camera** (includes cable)	853376-001
(7)	**System board**, includes audio board and thermal pads	
	• For use in North America, equipped with Windows 10, Snapdragon 820 quad core processor, 4 GB, 64 G eMMC	903660-001
	• For use in the rest of the world, equipped with Windows 10, Snapdragon 820 quad core processor, 4 GB, 64 G eMMC	905637-001
(8)	**Back cover**	
	For use in North America—Pre-assembled and IP tested and includes audio-out (headphone)/audio-in (microphone) combo jack for headset jack, USB port, NFC module, rear charging, heat spreader, lens adhesive, WWAN/WLAN	903684-001
	For use in rest of the world—Pre-assembled and IP tested and includes audio-out (headphone)/audio-in (microphone) combo jack for headset, USB port, NFC module, rear charging, heat spreader, lens adhesive, WWAN/WLAN	904364-001
(9)	**Card reader tray**	903690-001
(10)	**Antenna board**	903688-001
(11)	**End cap**	903689-001

Miscellaneous parts

Component	Spare part number
AC adapter, 10 W, NPFC. non-Smart USB, wall mount	911233-001
Cable, USB 3.1, Type-C	858604-001
Display pressure-sensitive adhesive	904362-001
Headset	906675-001
Metal kit, includes display flex retention bracket, battery flex retention bracket, rear camera retaining bracket, and USB flex retaining bracket	903686-001
Speaker mesh cap	904363-001
Tape, battery adhesive	903695-001
Screw kit, includes rubber screw cover grommet	903691-001
Device	
• For use in Americas region, X5V47AA, Black	907587-001
• For use in APJ region, Black with 1 SIM card	908817-001
• For use in APJ region, Black with 2 SIM cards	908818-001
• For use in EMEA region, Y1M43EA, Black	908006-001

4 Removal and replacement preliminary requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Phillips 00 screw driver
- Two plastic spudger tools
- Torx T5 screw driver
- Heat protective gloves
- Hot plate (heats to 80.0° C (176.0° F))
- Stand or way to secure the display
- 70 percent isopropyl alcohol
- 2 inch suction cup
- 0.05 mm thermal conductivity adhesive tape (heat tape)
- Grounding tape
- Compressed air
- Lint- and static-free cloths

    NOTE: The following items must be approved for use with the HP Elite X3. Contact your HP service contact for additional information.

- Glue machine and the glue for that machine
- Display panel adhesive alignment fixture
- Display kit alignment fixture
- Display pressing fixture
- Glue Path Golden Sample

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.

NOTE: As you remove each subassembly from the device, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

⚠ **CAUTION:** Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

⚠ **CAUTION:** When servicing the device, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the device.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

⚠ **CAUTION:** To prevent damage to the device when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

⚠ **CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels			
	Relative humidity		
Event	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V

Typical electrostatic voltage levels			
	Relative humidity		
Event	10%	40%	55%
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screw drivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.

- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5 Removal and replacement procedures

Component replacement procedures

⚠ **CAUTION:** Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the device and void the warranty.

📝 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your device, go to http://partsurfer.hp.com, select your country or region, and then follow the on-screen instructions.

This chapter provides removal and replacement procedures for authorized service provider only parts.

There are as many as 22 screws that must be removed, replaced, and/or loosened when servicing the device. Make special note of each screw size and location during removal and replacement.

Card reader tray

⚠ **CAUTION:** To reduce the risk of loss of data or an unresponsive system, save your information and close all programs associated with the microSD card.

Description	Spare part number
Card reader tray	903690-001

Remove the card reader tray:

▲ Place your fingernail in the small recess on the bottom of the card reader tray, pull out the tray to remove it from the device
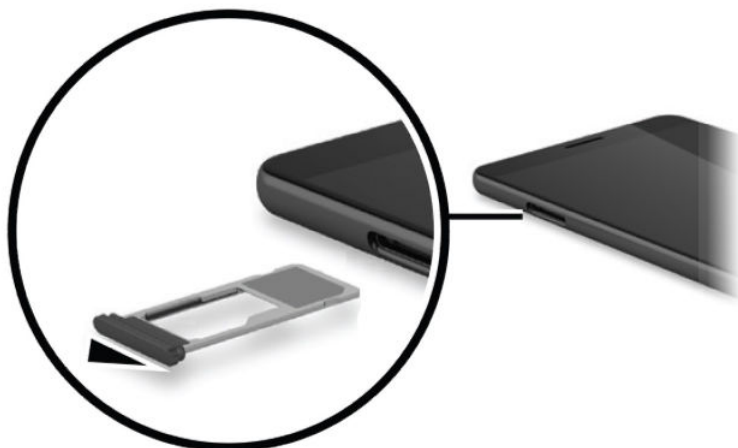
Reverse the steps to replace the tray.

End cap

Description	Spare part number
End cap	903689-001
Speaker mesh cap	904363-001

Remove the end cap:

▲ Insert a spudger in the gap between the end cap and the device, and then remove the end cap.

If you need to replace the speaker mesh cap:

▲ Insert a spudger in the gap between device and the cap, and then remove the cap.

📝 **NOTE:** Use the spudger to gently remove any remaining mesh.

Reverse the steps to replace the end cap.

NOTE: A small amount of glue may be required to secure the end cap. Contact your HP service contact for additional details.

Display panel assembly

Description	Spare part number
5.96 inch, WQHD 2560x1440 AMOLED, Touchscreen display panel assembly, includes OLED panel, laminated touch sensor, lens adhesive, and display flex	903687-001
Display pressure-sensitive adhesive	904362-001

NOTE: A glue machine, glue, and repair fixtures are required. Contact your HP service contact for additional details.

Before disassembling the device, follow these steps:

1. Disconnect the power from the device by unplugging the power adapter cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the device on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

Remove the display panel assembly:

CAUTION: The display panel is fragile. Before turning the display panel assembly upside down, make sure the work surface is clear of tools, screws, and any other foreign objects. Failure to follow this caution can result in damage to the display panel .

CAUTION: Have heat protective gloves or a way to safely move the device once it is heated.

IMPORTANT: Once the device is heated, you will need to work quickly to remove the display panel assembly before the glue hardens again.

NOTE: Have a stand to hold the display or have way to secure the display panel assembly at a 90 degree angle after you release the left side of the display. The display panel assembly will need to be secured as you release the battery and display flex cables.

1. Preheat the hot plate to 80.0° C (176.0° F).

2. Place the device with the display side down on the hot plate for 8 minutes, and then carefully remove the device to your workstation.

   NOTE: There is a display flex cable on the top of the right side.

3. Insert a spudger **(1)** between the bottom of the display panel and chassis, move the spudger from left to right, and then place a 2 inch suction cup **(2)** on the bottom right and gently pry the right edge of the display away from the chassis.

4. Place the suction cup **(3)** on the bottom left and gently pry the left edge of the display away from the chassis.

5. Place the suction cup **(4)** in the middle of the display and gently pry the rest of the display away from the chassis.

6. With the suction in the middle, lift the display **(1)** to open it. The display flex cable is still connected on the right side.

7. Use a spudger **(2)** to break the adhesive at the top of the device.
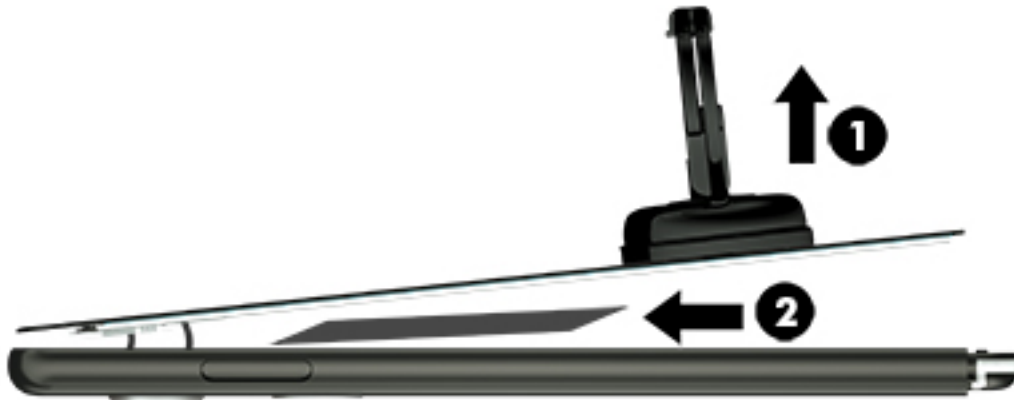
8. Lift the left side **(1)** of the display assembly. The display flex cable is still connected on the right side.

9. Remove the two M1.6_L4.35 Phillips screws **(2)** securing the battery flex retaining bracket.

10. Use a spudger to release the battery flex retaining bracket **(3)**. The bracket is part of the Metal Kit, part number 903686-001.

    📝 **NOTE:** The battery flex retaining bracket may be glued to the battery flex.

11. Use a spudger to gently disconnect the battery flex **(4)** from the chassis.

12. Unscrew the two M1_L1.4 Phillips screws **(5)** securing the display flex retention bracket at the top right of the device.

13. Remove the display flex retention bracket **(6)**. The bracket is part of the Metal Kit, part number 903686-001.

14. Use a spudger to disconnect the 60 pin display flex connector **(7)**.
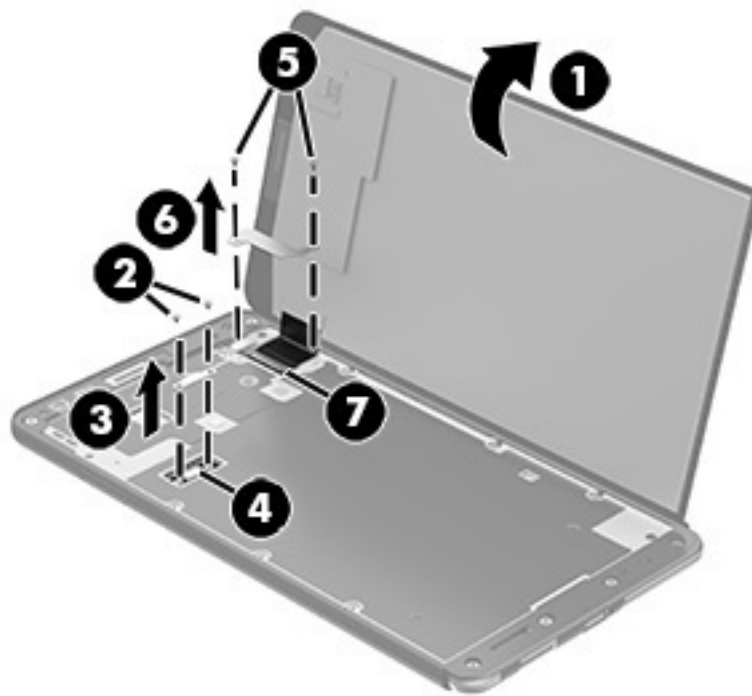
15. Use a spudger and 70 percent isopropyl alcohol to remove any remaining glue from the display and main assembly.

Use the following procedures to replace the display panel assembly.

IMPORTANT: The following instructions are general guide to replace the display panel assembly. Follow the instructions for your specific glue machine to apply the glue to the device, and then replace the display panel assembly.

1. Set up the glue machine.

    a. Program the glue machine to dispense glue to match the Glue Path Golden Sample provided by your HP service contact.

    b. Make sure the glue tube is installed per the manufacturer's instructions.

    NOTE: As many as 10 samples of the glue path could be required. Each sample must fit the following criteria:

        ● Have a clear, protective film for the glue that can be discarded without ruining the device

        ● Visually match the Glue Path Golden Sample

        ● Have a glue weight of no less than 0.23 g and no more than 0.28 g

    c. Test the glue path with at least four samples. Be sure to clean the glue nozzle after each sample.

    NOTE: Calibrate the glue machine every 80 to 100 runs.

2. Apply the display pressure-sensitive adhesive.

   **IMPORTANT:** Before applying the display pressure-sensitive adhesive, be sure the chassis side of the device is completely clean. Remove any dust with compressed air or with a lint- and static-free cloth and alcohol.

**a.** Remove the device side of the protective film from the display pressure-sensitive adhesive.

b. With the removed adhesive side up, insert the display pressure-sensitive adhesive into the display panel adhesive alignment fixture.

> 📝 **NOTE:** Make sure the device is oriented to match the display pressure-sensitive adhesive orientation.

c. Place the device with the chassis side face down into the display panel adhesive alignment fixture to attach the display pressure-sensitive adhesive to the device.

> 📝 **NOTE:** The device back cover will be facing up.

d. Hold the device in place on the adhesive with 240±10 N (24.5±1 kg) for 20 seconds.

e. Remove the device from the display panel adhesive alignment fixture, and then verify the display pressure-sensitive adhesive is located properly.

f. Use a plastic spudger to press the display pressure-sensitive adhesive along all four sides.

g. Remove the display side of the protective film from the display pressure-sensitive adhesive.

h. Clean the camera area with 70 percent isopropyl alcohol or compressed air.

3. Apply the glue.

a. Secure the device, chassis-side up, in the glue machine fixture.

b. Clean the glue machine nozzle with a lint- and static-free cloth and 70 percent isopropyl alcohol.

c. Run the glue program.

d. Visually inspect the glue path.

4. Install the display, and then reconnect the cables and brackets.

> 📝 **IMPORTANT:** Be sure the display panel is completely clean. Remove any dust with compressed air or with a lint- and static-free cloth and alcohol.

a. Secure the device, chassis-side up, in the display kit alignment fixture.

b. Place the display side of the display assembly against the wall of the display kit alignment fixture.

c. Connect the 60 pin display flex connector **(1)**.

d. Replace the display flex retention bracket **(2)** and rescrew the two M1_L1.4 Phillips screws **(3)** securing the bracket to the top right of the device.

e. Connect the battery flex **(4)**.

f. Replace the battery flex retention bracket **(5)** and rescrew the two M1.6_L4.35 Phillips screws **(6)** securing the bracket to the device.

g. Apply grounding tape **(7)** on the display flex retention bracket and chassis.
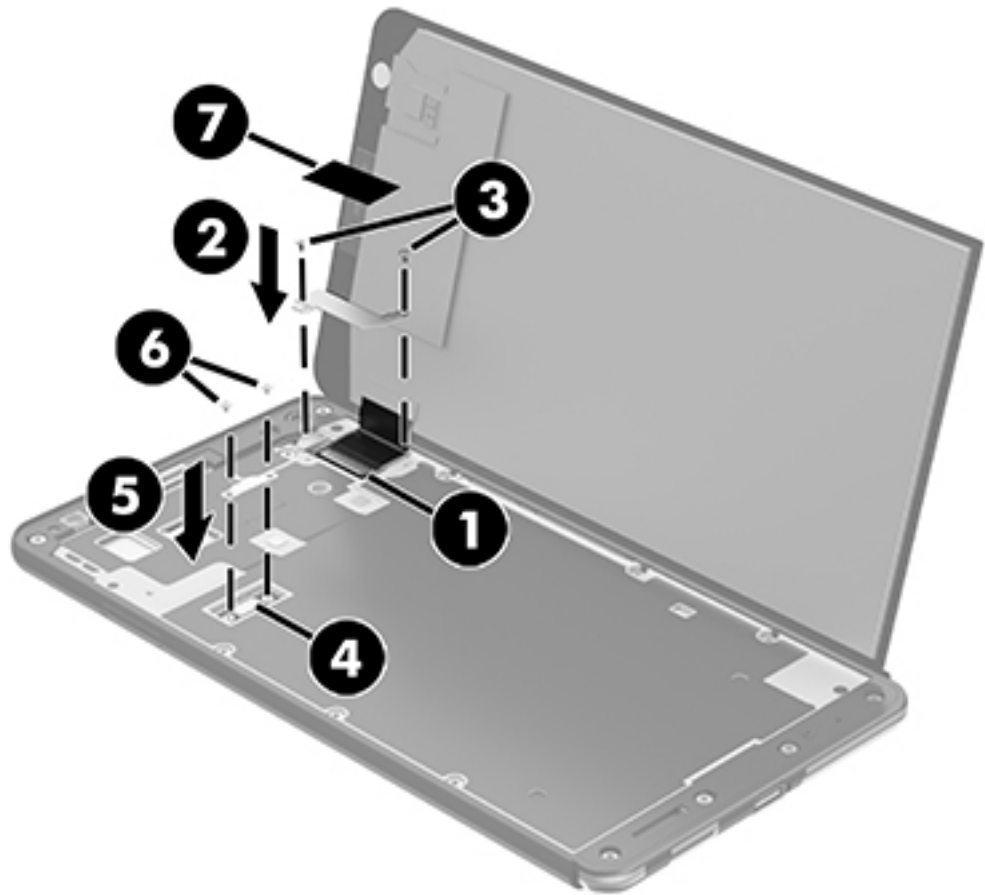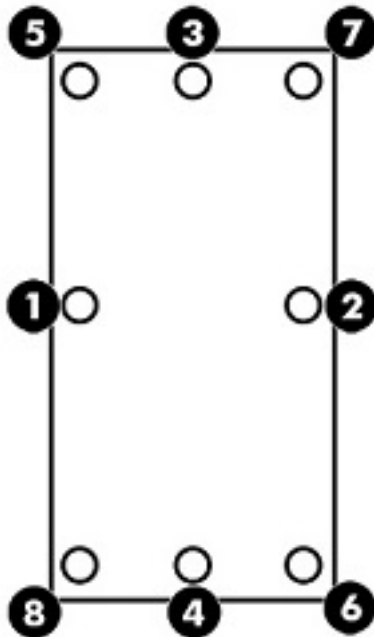
5. Align the display.

    a. Align the display assembly with the guides in the display kit alignment fixture.

    b. Press the display assembly on the glue on the device.

    c. Visually confirm the display assembly is in the correct location.

    d. Use a lint- and static-free cloth with 70 percent isopropyl alcohol to remove any excess glue.

e. Use 7 pieces of 0.05 mm thermal conductivity adhesive tape (heat tape) to secure the display assembly in place.
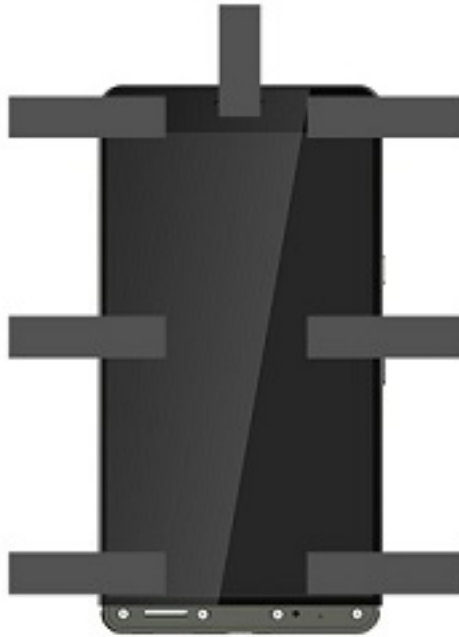
6. Allow the glue to cure.

a. Insert the device in the display pressing fixture.

b. Insert the Torx screws in the order shown with 1.3±0.5 kgf·cm.

📝 **NOTE:** Refer to the glue specifications for additional acceptable environments.

c. Allow glue to dry at least 4 hours in an environment of 75%–85% humidity and 25.0° C (77.0° F).

d. Remove the screws in the order shown.
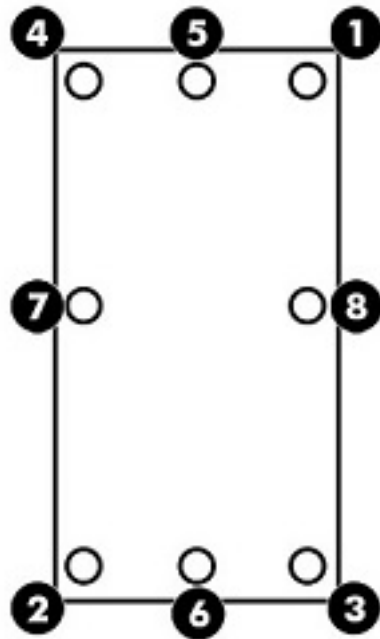
e. Remove the device from the display pressing fixture.

f. Remove the 7 pieces of tape.

7. Clean the glue

a. Visually inspect the glue locations along all of the edges.

> **NOTE:** Most glue will be found along the top edge.

b. Use a plastic spudger to remove any excess glue.

c. Visually inspect the glue locations along all of the edges again.

d. Use a lint- and static-free cloth with 70 percent isopropyl alcohol to remove any excess glue.

e. Visually inspect the glue locations along all of the edges again.

f. Repeat steps b. – e. as needed.

g. Replace the end cap, card reader tray, and any external devices.

Chassis and battery removal

Description	Spare part number
Chassis, pre-assembled and IP tested, includes upper and lower speakers, battery, lens, adhesive, and thermal pad	903685-001
Battery, 1C, 15 WHr, LI FC01015-PL non-user removable	838524-005
Tape, battery adhesive	903695-001

Before disassembling the device, follow these steps:

1. Disconnect the power from the device by unplugging the power adapter cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the device on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

⚠ **CAUTION:** Disconnecting a battery that is the sole power source for the device can cause loss of information. To prevent loss of information, save your work or shut down the device through the operating system before disconnecting the battery.

🗒 **IMPORTANT:** Do not remove the battery from the chassis. If you are installing a new battery or a new chassis, you must replace both the chassis and battery with a new chassis and new battery.

Remove the chassis and battery:

1. Remove the 15 T5 chassis screws from the chassis.

   🗒 **NOTE:** The three screws at the top and four screws at the bottom are captive screws.

   For certain products, adhesive tape may cover one of the top screws. Remove the adhesive tape to access the screw.

2. Gently remove the chassis. You can use suction cups or a thin metal tool to help remove the chassis.
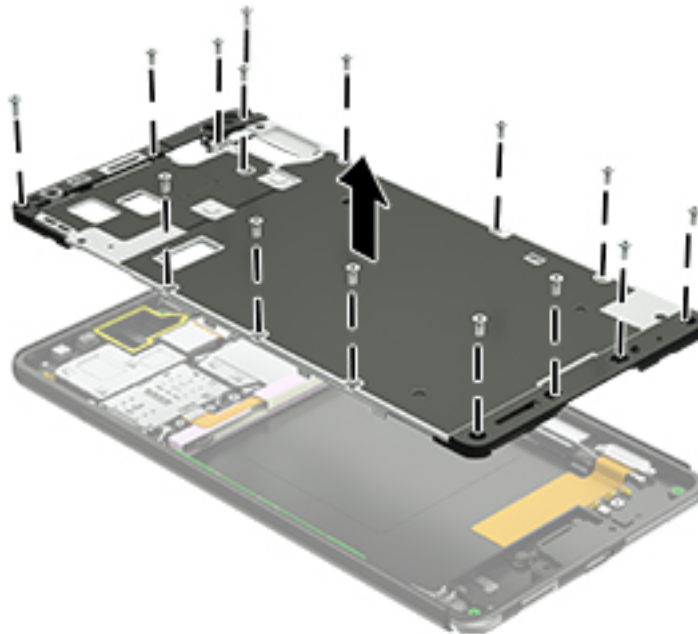
To install a new battery:

1. Remove the bottom protective film from the battery adhesive, and then attach the battery adhesive to the battery location **(1)** on the new chassis.

NOTE: Press down the battery adhesive and make sure it is smooth and even.

2. Remove the top protective film from the adhesive on the chassis, position the top of the battery over the chassis, and make sure the connectors **(2)** are aligned.

3. Attach the battery **(3)** to the chassis.
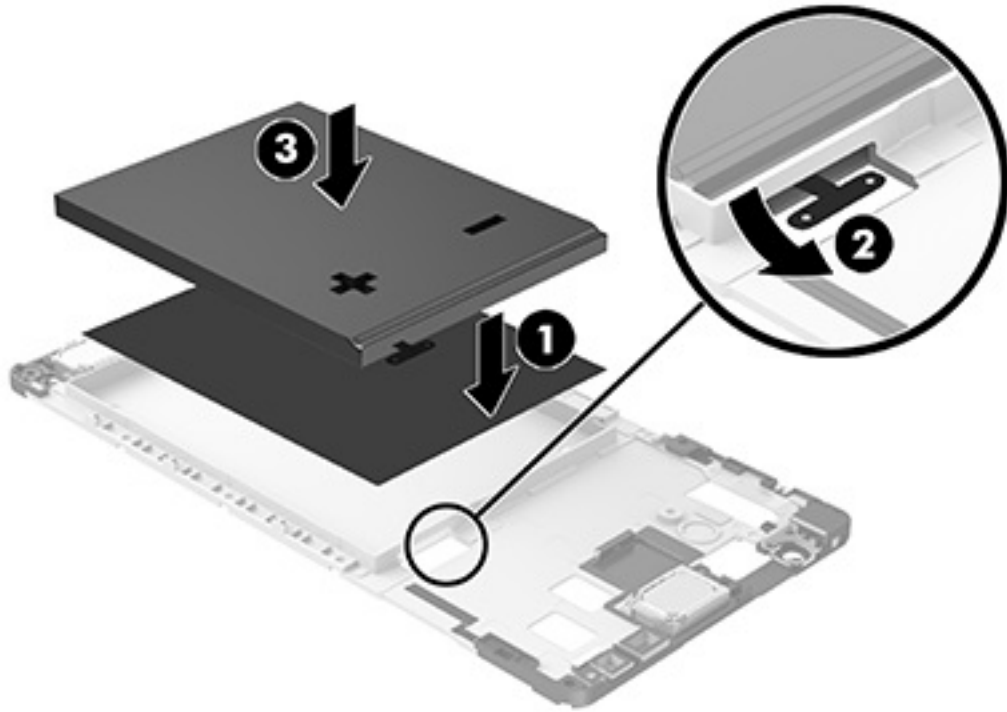
4. To replace the chassis, place it in the back cover, replace the 15 T5 screws, and then reverse the remaining prerequisite procedures to complete installation.

Rear camera

Description	Spare part number
Rear camera (includes cable)	853376-001

Before removing the rear camera, follow these steps:

1. Disconnect the power from the device by unplugging the power cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the computer on, and then shut it down through the operating system.
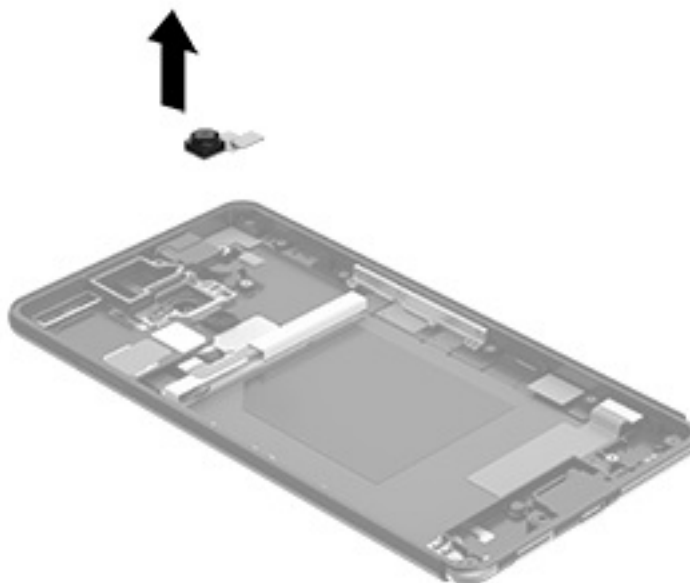
3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

7. Remove the chassis (see Chassis and battery removal on page 25).

Remove the rear camera:

1. Remove the M1_L1.4 Phillips screw **(1)** securing the rear camera flex retaining bracket.

2. Remove the rear camera flex retaining bracket **(2)**. The bracket is part of the Metal Kit, part number 903686-001.

3. Use a spudger to gently disconnect the rear camera flex **(3)**.
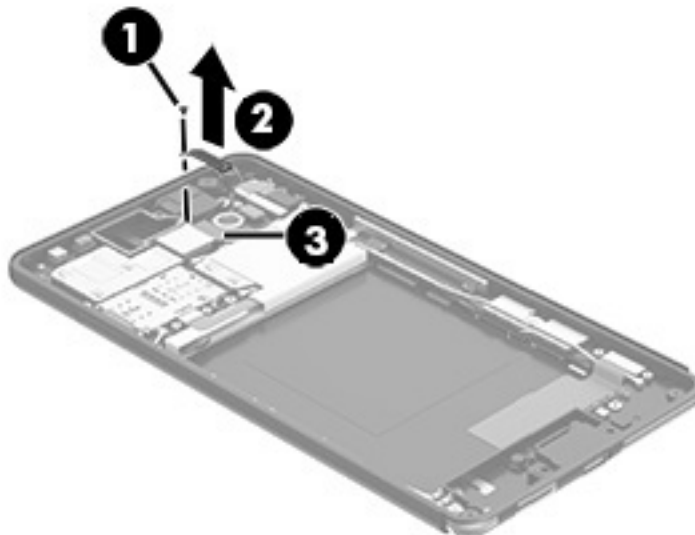
4. Use a spudger to gently disconnect the following flex cables from the system board:

    1. Iris camera

    2. Front camera

3. Audio-out (headphone)/Audio-in (microphone) combo jack

4. Rear camera
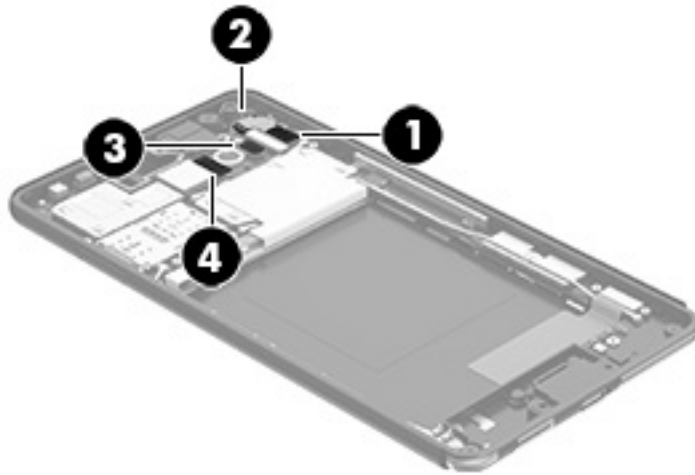
5. Use a spudger to gently remove the rear camera from the chassis.
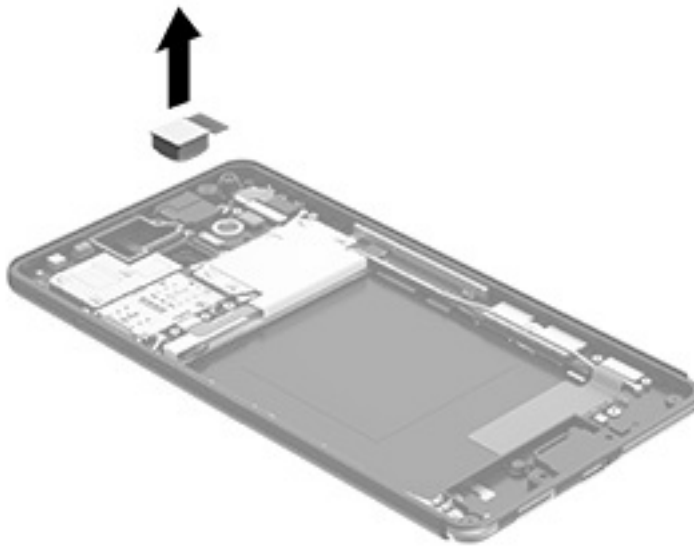
Reverse this procedure to install the rear camera.

System board

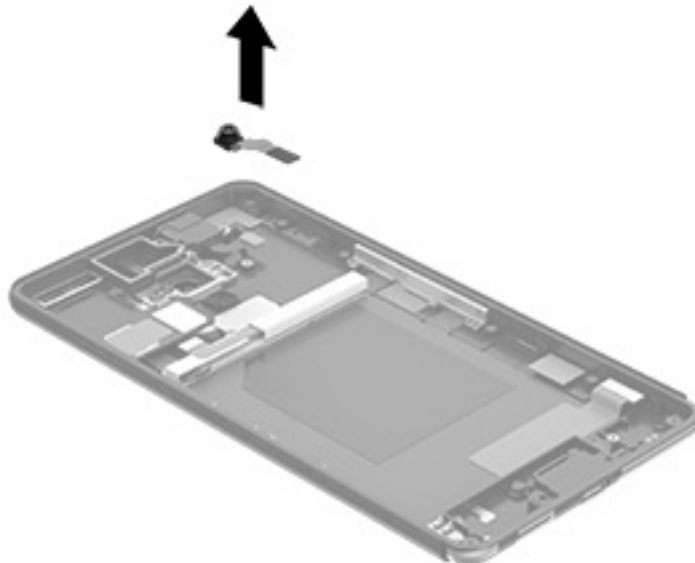| Description	Spare part number
System board, includes audio board and thermal pads:	
• For use in North America, equipped with Windows 10, Snapdragon 820 quad core processor, 4 GB, 64 G eMMC	903660-001
• For use in the rest of the world, equipped with Windows 10, Snapdragon 820 quad core processor, 4 GB, 64 G eMMC	905637-001

Before removing the system board, follow these steps:

1. Disconnect the power from the device by unplugging the power cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the computer on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

7. Remove the chassis (see Chassis and battery removal on page 25).

8. Remove the rear camera (see Rear camera on page 28).

Remove the system board:

1. Remove the two M1_L1.4 Phillips screws **(1)** securing the USB flex retaining bracket.

2. Remove the USB flex retaining bracket **(2)**. The bracket is part of the Metal Kit, part number 903686-001.

3. Use a spudger to gently disconnect the USB flex **(3)** from the system board.

4. Disconnect the main antenna cable **(4)** from the system board.

📝 **NOTE:** Note the routing of the cable.
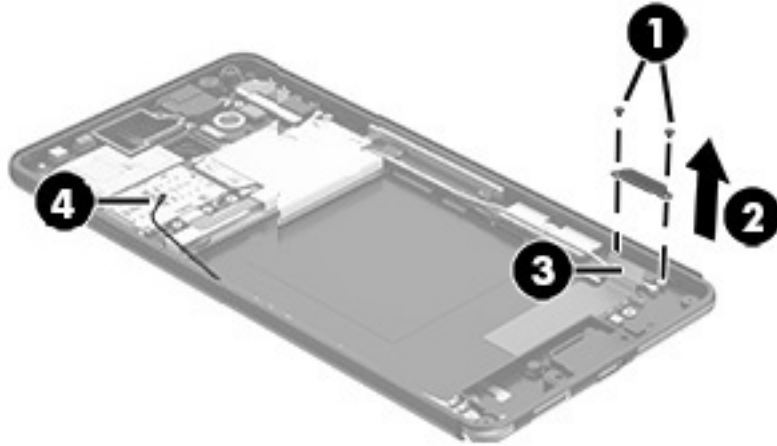
5. Remove the four T5 screws **(1)** securing the system board.

6. Lift the system board from the back cover.

📝 **NOTE:** The fingerprint reader/NFC sensor flex cable is connected under the system board. It is next to the power button, and is routed under the antenna wire.

7. Release the fingerprint reader/NFC module flex cable from the ZIF connector, and then remove the system board **(2)**.
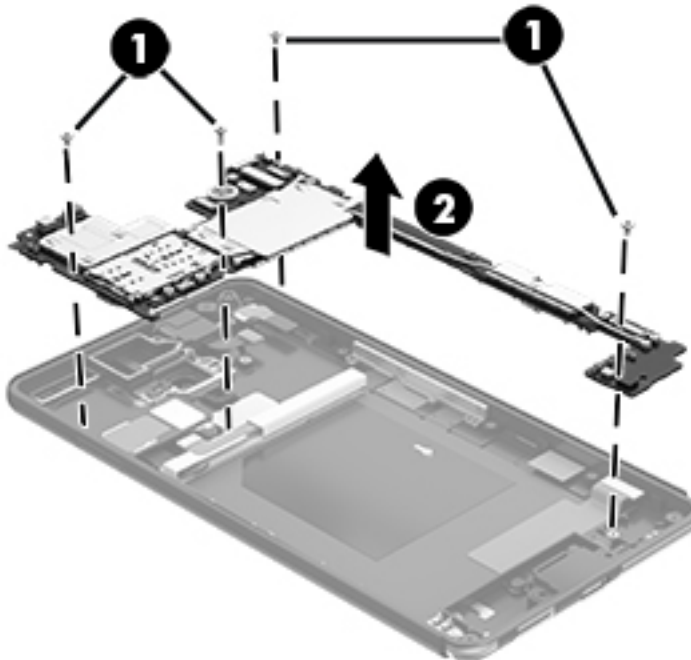
Reverse this procedure to install the system board.

Front camera

Description	Spare part number
Front camera (includes cable)	853377-001

Before removing the front camera, follow these steps:

1. Disconnect the power from the device by unplugging the power cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the computer on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

7. Remove the chassis (see Chassis and battery removal on page 25).

8. Remove the rear camera (see Rear camera on page 28).

9. Remove the system board (see System board on page 30).

Remove the front camera:

▲ Lift and remove the front camera.

📝 **NOTE:** There is adhesive securing the camera to the back cover.

Reverse this procedure to install the front camera.

Iris camera

Description	Spare part number
Iris camera (includes cable)	900262-001

Before removing the iris camera, follow these steps:

1. Disconnect the power from the device by unplugging the power cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the computer on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

7. Remove the chassis (see Chassis and battery removal on page 25).

8. Remove the rear camera (see Rear camera on page 28).

9. Remove the system board (see System board on page 30).

Remove the iris camera:

▲ Lift and remove the iris camera.

📝 **NOTE:** There is adhesive securing the camera to the back cover.

Reverse this procedure to install the iris camera.

Antenna board

Description	Spare part number
Antenna board	903688-001

Before removing the antenna board, follow these steps:

1. Disconnect the power from the device by unplugging the power cord from the device.

2. Turn off the device. If you are unsure whether the device is off, turn the computer on, and then shut it down through the operating system.

3. Disconnect all external devices from the device.

4. Remove the card reader tray (see Card reader tray on page 16).

5. Remove the end cap (see End cap on page 17).

6. Remove the display panel assembly (see Display panel assembly on page 18).

7. Remove the chassis (see Chassis and battery removal on page 25).

8. Remove the rear camera (see Rear camera on page 28).

9. Remove the system board (see System board on page 30).

IMPORTANT: Make careful note of the routing of antenna cable for later replacement.

Remove the antenna board:

1. Remove the two M1.1_L2.1 Phillips screws **(1)** securing the antenna board.

2. Lift and remove the antenna board **(2)**.
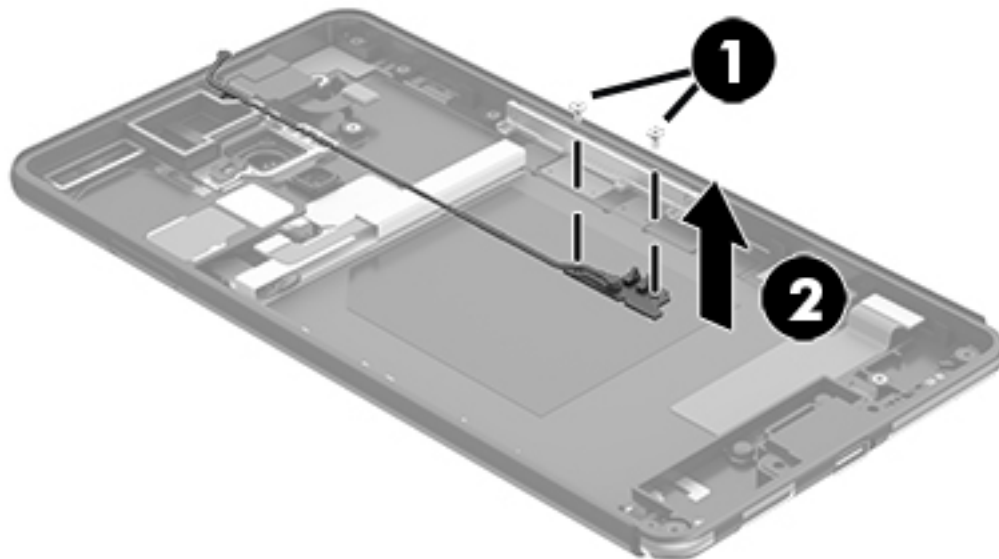
Reverse this procedure to install the antenna board.

6 Specifications

	Metric	U.S.
Dimensions (portrait orientation)		
Height	**16.18 cm**	6.37 in
Width	**8.35 cm**	3.29 in
Depth	**0.78 cm**	0.31 in
Weight (lowest weight configuration)	**0.195 kg**	0.43 lb
Input power		

The device operates on DC power, which can be supplied by an AC or a DC power source. The AC power source must be rated at 100-240 V, 50/60 Hz, 0.3-1.0 A.

NOTE: The HP adapter included with the device is recommended for charging the device.

	Metric	U.S.
Temperature		
Operating	**0°C to 35°C**	32°F to 95°F
Nonoperating	**-20°C to 60°C**	-4°F to 140°F
Relative humidity (non-condensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	**-15 m to 3,048 m**	-50 ft to 10,000 ft
Nonoperating	**-15 m to 12,192 m**	-50 ft to 40,000 ft

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.

7 Power adapter requirements

The wide-range input feature of the device permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 2-conductor power adapter included with the device meets the requirements for use in the country or region where the equipment is purchased.

Power adapters for use in other countries and regions must meet the requirements of the country or region where the device is used.

Requirements for all countries

The following requirements are applicable to all countries and regions:

● The length of the adapter cord set must be at least **1.0 m** (3.3 ft) and no more than **2.0 m** (6.5 ft).

● All power adapters must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the adapter will be used.

Requirements for specific countries and regions

Country/region	Accredited agency
Argentina	IRAM
Australia	SAA
Austria	OVE
Belgium	CEBEC
Brazil	ABNT
Canada	CSA
Chile	IMQ
Denmark	DEMKO
Finland	FIMKO
France	UTE
Germany	VDE
India	ISI
Israel	SII
Italy	IMQ
Japan	JIS
The Netherlands	KEMA
New Zealand	SANZ

Country/region	Accredited agency
Norway	NEMKO
The People's Republic of China	CCC
Saudi Arabia	SASO
Singapore	PSB
South Africa	SABS
South Korea	KTL
Sweden	SEMKO
Switzerland	SEV
Taiwan	BSMI
Thailand	TISI
The United Kingdom	ASTA
The United States	UL

8   Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at http://www.hp.com/recycle.

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